REGULATION SCOPING PAPER
Alternative and Renewable Fuel and Vehicle Technology Program

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Purpose of this Document

Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007) created the Alternative and Renewable Fuel and Vehicle Technology Program (Program). The legislation authorizes the California Energy Commission (Energy Commission) to spend approximately $120 million per year for over seven years to develop and deploy innovative technologies that will transform California's fuel and vehicle types. The Program will help meet the state's alternative fuel use and petroleum reduction and climate change goals. The emphasis of this Program is to assure alternative and renewable fuels are available in the marketplace, without adopting any one preferred fuel or technology, and decrease life-cycle greenhouse gas emissions, air pollutants, and water pollutants; reduce or avoid other associated environmental impacts; and maintain the sustainability of the state's natural resources.

On January 30, 2008, the Energy Commission approved an Order Instituting Rulemaking (OIR 06-0130-05) to adopt guidelines, definitions, and other provisions necessary for the administration of the Program. This rulemaking will develop and adopt regulations that are necessary to clarify ambiguities in statute and create certainty and transparency in the administration of the Program.

This rulemaking is divided into two phases: an informal and a formal phase. The informal phase will present regulatory concepts and draft regulatory language to stakeholders for public review and discussion. The informal phase is important because it provides a relatively easy means for the Energy Commission staff and stakeholders to identify and resolve any issues with the regulatory concepts and draft regulatory language. The formal phase begins when the Energy Commission adopts and submits Initial Statement of Reasons and the proposed regulations for public review.

In this scoping paper, Energy Commission staff presents its regulatory concepts based on key provisions of AB 118 to determine whether existing statutory language provides sufficient guidance and clarity to effectively administer the Program:

- Full Fuel Cycle Assessment
- Fuel and Vehicle Technology Definitions
- Sustainability Goals
- Revenue Streams
- Measure Program Results
- Anti-Backsliding Guidelines (Regulations developed by the Air Resources Board [ARB])
- Existing Law/Rule, Regulations
- Advisory Committee
- Investment Plan
- Ratepayer Benefits

The intent of this scoping paper is to obtain insights, comments, and feedback on the staff recommendations and supporting rationale for each of the 10 topics. The Energy Commission staff encourages interested parties to provide comments on all sections of the paper. The Energy Commission staff will develop draft regulatory language where clarification or specificity is necessary and will release the draft regulatory language for public review before initiating the formal phase of this rulemaking.

Full Fuel Cycle Assessment

Statutory Language

Health and Safety Code Section 44270.3 (b) specifies that:

> "Full fuel cycle assessment means evaluating and comparing the full environmental and health impacts of each step in the life cycle of a fuel, including, but not limited to, all of the following:
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> - Feedstock production, extraction, transport, and storage.
> - Fuel production, distribution, transport, and storage.
> - Vehicle operation, including refueling, combustion, conversion, permeation, and evaporation."

Approach

This provision provides clear guidance and direction to the Energy Commission as it applies to the implementation and administration of the Program. No further clarification in regulation is needed.

Rationale

The definition of full fuel cycle assessment in the Health and Safety Code relies on several established methodologies to measure fuels emissions performance on a full fuel cycle basis. These include the methodologies laid out in Argonne National Laboratory's Greenhouse Gases (GHG), Regulated Emissions and Energy in Transportation (GREET) Model as well as approaches defined by International Organization for Standardization (ISO) 14040.[1]

This same definition is consistent in other proceedings and several government agencies have used the same definition to adopt a policy. The definition has also passed public and peer review with stakeholder input through a series of public proceedings and workshops.

[1] *Environmental Management – Life Cycle Assessment – Principles and Framework*, ISO 14040, 2006.

The AB 2076 and the AB 1007 proceedings[2,3] used a full fuel cycle assessment in their evaluation of emissions performance of transportation fuels. The ARB is developing its Low Carbon Fuel Standard (LCFS) using a full fuel cycle assessment.[4]

It also is important to note that AB 109 (Núñez) and Senate Bill (SB) 1240 (Kehoe) contain language that would expand this definition to include the specified activities feedstock cultivation, fuel manufacturing and marketing, transportation and use of water and changes in land use and land cover. These amendments would further clarify statute and reinforce staff's position that regulations are not needed for this topic. The Energy Commission currently is working to expand the full fuel cycle assessment by updating the AB 1007 Full Fuel Cycle Analysis, including an assessment of the sustainability of transportation fuels.

Fuel and Technology Definitions

Statutory Language

Health and Safety Code Section 44272 (c) (1) specifies the following fuels are eligible to receive funding:

> "All of the following shall be eligible for funding: Alternative and renewable fuel projects to develop and improve alternative and renewable low-carbon fuels, including electricity, ethanol, dimethyl ether, renewable diesel, natural gas, hydrogen, and biomethane, among others, and their feedstocks that have high potential for long-term or short-term commercialization, including projects that lead to sustainable feedstocks."

Health and Safety Code Section 44272 (c) (2) through (6), (8), and (9) define the technologies that are eligible for funding under this Program.

Approach

Regulations are needed to clearly define eligibility to include the production and manufacture of advanced vehicles and related technologies.

Rationale

While the specific fuels identified in statute may not be a complete list of alternative and renewable fuels available today, the statute specifically includes the phrase "among others." This phrase acknowledges the existence and potential development of other alternative and renewable fuels that could be eligible for funding. To define eligibility based on alternative fuels currently available may inadvertently exclude future advancements. Staff proposes to rely on

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[2] *Reducing California's Petroleum Dependence*, Energy Commission and ARB, joint agency report, August 2003, 600-03-005.

[3] *State Alternative Fuels Plan*, Energy Commission and ARB, December 2007, CEC-600-2007-011-CMF.

[4] *A Low Carbon Fuel Standard; Part 1: Technical Analysis*, prepared by Alexander Farrell and Daniel Sperling, University of California, August 2007.

the broad framework established in current statute to determine the eligibility of fuels. The statute also broadly defines vehicle technologies that are eligible for funding, including those that would improve vehicle efficiency without regard to the use of conventional, alternative or renewable fuels. Staff proposes to rely on this broad framework to determine the eligibility of technologies.

In this context, however, the statute generally refers to projects that will develop, demonstrate and deploy advanced fuels and technologies. Staff believes that eligibility should extend to projects that would produce or manufacture these fuels and technologies in California. On this issue the statute is not clear. The statute allows for the production of alternative and renewable fuels in California, but does not identify the eligibility for production of vehicles and related technologies. Staff is proposing to draft regulations that would explicitly allow eligibility to include the production and manufacture of alternative and renewable fuels and vehicles and related technologies.

Sustainability Goals

Statutory Language

Health and Safety Code Section 44271(a)(2) requires the Energy Commission to:

> "Establish sustainability goals to ensure that alternative and renewable fuel and vehicle deployment projects, on a full fuel cycle basis, will not adversely impact the state's natural resources, especially state and federal lands."

Approach

Regulations are needed to define program sustainability goals and apply them to potential projects. The Energy Commission proposes four sustainability goals and an interpretation of key phrases in Section 44271(a)(2).

Rationale

The Energy Commission recognizes that there are state, federal, and international concerns about potential sustainability issues associated with alternative transportation fuels, most notably with biofuels. Unsustainable production of alternative fuels can contribute to the collapse of terrestrial and aquatic ecosystems, loss of sufficient supplies of potable water to meet human health requirements, loss of air quality necessary to meet public health standards, and loss of arable land needed to grow basic food commodities essential to human welfare. Energy Commission staff interprets a sustainable fuel production system as one that the amounts of land, water, and natural resources used for alternative fuel production, and the resulting pollution generated from air, water, toxic, and solid waste streams, do not further and unacceptably degrade already damaged ecosystems, water basins and air basins in California, the U.S., and internationally. Sustainable practices recognize and respect the physical carrying

capacity limits of natural systems at the local, regional and global scale. Sustainable practices respect human dignity and contribute to the economic welfare of people globally.

After extensive research and consultation with government, academic, and industry experts, staff finds no singular definition or measurement system for sustainability that encompasses the previous concepts and is suitable to meet regulatory standards for the eight year duration of the AB 118 funding program. Staff therefore proposes the following goals, assumptions, and project options to address the sustainability concerns associated with alternative transportation fuels.

In interpreting Section 44271(a)(2), the Energy Commission assumes that: 1) sustainability goals will not eliminate environmental impacts in the near term; 2) sustainability goals must be applied globally to ensure full-fuel cycle assessments in a global fuels market, and are not restricted to California's natural resources; 3) sustainability goals and practices require environmental performance that exceeds existing regulatory standards in California; and 4) full fuel cycle analyses of fuel pathways means that infrastructure projects, alternative technologies and alternative fuels be considered as a complete system.

The Energy Commission's four proposed sustainability goals are described below, followed by examples of project characteristics that would further each goal.

Sustainability Goal No. 1: Identify and support alternative fuels and technologies with the best potential for meaningful petroleum and GHG emission reductions associated with California's transportation system to help the state meet its goals of reducing GHG emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050.[5]

- Projects with a minimum 10 percent reduction in GHG emissions, including direct and indirect land-use changes, from the petroleum baseline.
- Bridging technologies with long-term potential for substantial reductions in GHG emissions.

Sustainability Goal No. 2: Recognize, support and encourage production of alternative fuels and vehicle technologies that are more environmentally efficient and less environmentally damaging than current baseline practices for the production of petroleum fuels, production of basic agricultural commodities, and extraction of natural resources, when measured on a life-cycle basis. Ensure that the amounts of land, water, and natural resources used for alternative fuel production, and the resulting pollution generated from air, water, toxic, and solid waste streams, do not further and unacceptably degrade already damaged ecosystems, water basins, and air basins. It is assumed that all projects subject to California Environmental Quality Act (CEQA) will at a minimum mitigate significant impacts to comply with state and federal law.

- Using waste streams for fuel feedstocks.
- Purpose-grown energy crops that follow a Sustainability Best Management Practices Plan developed with the California Biomass Collaborative.

[5] California Global Warming Solutions Act of 2006 (AB 32); Governor's Executive Order S-03-05.

- Certified compliance with a recognized sustainability reporting system.[6]
- Energy crops uniquely suited to California's climate, water, and natural resource constraints.
- Biofuel feedstocks from existing agricultural lands.
- Renewable energy in production, processing, and distribution phases.

Sustainability Goal No. 3: Some climates are uniquely suited to the production of promising biofuel feedstocks such as sugarcane and palm oil. However, there are many legitimate concerns over secondary environmental impacts to water supplies, ecosystems, and wildlife from non-sustainable production have been identified. The Energy Commission's goal is to identify and promote practices and programs for certified, sustainable production of biofuels that can serve California markets with low GHG transportation fuels and provide economic benefits to under-privileged peoples and societies globally.

- Projects that produce or procure Best Available, Most Sustainable fuels, and that follow sound supply-chain management practices.[7]
- Projects that provide certified compliance with a recognized sustainability reporting system.[8]

Sustainability Goal No. 4: Minimize risk of unanticipated consequences from alternative fuel production to food supplies essential to human consumption, prices of basic food commodities, and potential abuse of basic human and labor rights.

Supporting background information and further explanation of these sustainability goals are provided in the Regulatory Concept Paper and Sustainability White Paper.

[6] Such systems could include the United Kingdom's Renewable Transport Fuel Obligation, the Roundtable for Sustainable Palm Oil (if compliance can be guaranteed), and the Forest Stewardship Council.

[7] "Best Available, Most Sustainable fuel" is conceptually similar to the Best Available Control Technology concept widely used in major environmental statutes and regulations, where pollution control technologies with the highest levels of pollution control that are commercially feasible and viable become the benchmark standard for an industry sector.

[8] See note 6.

Revenue Streams

Statutory Language

Health and Safety Code Section 44271(a) (3) requires the Energy Commission to "identify revenue streams for the programs created pursuant to this chapter."

Approach

This provision provides clear guidance and direction to the Energy Commission as it applies to implementing and the administration of the Program. No further clarification in regulation is needed.

Rationale

Non-state matching funds will provide financing for projects in conjunction with funding provided through the Program. It is intended that incentive funding maximize matching non-state investment to increase the cost effectiveness of the incentives. AB 118 provides further guidance by directing the Energy Commission, in developing the *Investment Plan*, to "…describe how funding will complement existing public and private investments, including existing state programs that further the goals of this chapter." Energy Commission staff is exploring potential strategic partners. The list of other funding sources includes:

Air Resources Board
Bay Area AQMD
California Clean Energy Fund
California Public Utilities Commission
California Transportation Commission
CalPERS
CalSTRS
City National Bank
Draper Fisher Jurvetson
E2 Environmental Entrepreneur
Fortis Capital
Google
Investor-owned utilities
Khosla Ventures
Mission Point Capital
Municipal Utilities
Rockport Capital Partners
Ports of Long Beach and Los Angeles
South Coast Air Quality Management District
Silicon Valley Leadership Group
Sacramento Metropolitan Air Quality Management District
State Treasurer's Office
U.S. Department of Agriculture-Natural Resources Conservation Services
U.S. Department of Energy
U.S. Department of Energy –Energy Efficiency and Renewable Energy
U.S. Environmental Protection Agency
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The Energy Commission will continue to research potential revenue streams for additional funding that will leverage the Program funds.

Measure Program Results

Statutory Language

Health and Safety Code Section 44271(a)(4) requires the Energy Commission to "Ensure that the results of reductions in emissions or benefits can be measured and quantified."

Approach

This provision provides clear guidance and direction to the Energy Commission as it applies to implementing and the administration of the Program. No further clarification in regulation is needed.

Rationale

The Energy Commission will annually measure project and program results under the framework established by law. Health and Safety Codes Section 44272(a) lists 11 criteria for the Energy Commission to use, as appropriate, in providing funding for projects that maximize the goals of the Program. The Energy Commission will use these criteria to measure annual progress achieving the goals of the Program. Further, AB 109 contains language that would require the Energy Commission, beginning with the *2011 Integrated Energy Policy Report* to provide an evaluation of research, development, and deployment efforts funded through the Program using criteria similar to those in section 44272(a).

Anti-Backsliding Guidelines

Statutory Language

Health and Safety Code Section 44271(b) requires the ARB to:

"…develop guidelines for both the Alternative and Renewable Fuel and Vehicle Technology Program and the Air Quality Improvement Program to ensure that programs meet both of the following requirements:

- Activities undertaken pursuant to the programs complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions.
- Activities undertaken pursuant to the programs maintain or improve upon emission reductions and air quality benefits in the State Implementation Plan for Ozone, California Phase 2 Reformulated Gasoline standards, and diesel fuel regulations."

Approach

The ARB is developing regulations that will apply to all projects funded under this program. The Energy Commission will incorporate these guidelines by reference in project solicitations. All projects funded will comply with the guidelines.

Rationale

It is not necessary for the Energy Commission to incorporate these guidelines into the Program regulations. Once approved by the Office of Administrative Law and published by the Secretary of State, these guidelines have the force of law and must be adhered to by the Energy Commission.

Existing Law, Rules, and Regulations

Statutory Language

Health and Safety Code Section 44271(c) prohibits the Energy Commission and ARB from funding projects that are "…required to be undertaken pursuant to state or federal law or district rules or regulations."

Approach

Regulations are needed to clarify that the Energy Commission cannot provide AB 118 funds to entities: 1) that are obligated to comply with an existing law, rule, and regulation; and 2) in support of the regulated activity.

Rationale

Energy Commission staff has examined relevant existing laws, rules, and regulations and has concluded that it is clear which entity has the obligation to comply. Regulations however will clarify that these obligated entities are ineligible for AB 118 funding for projects that they are required to carry out under existing law.

Examples of relevant existing rules and regulations include the LCFS, the Zero Emission Vehicle (ZEV) mandate, and regional air district programs (such as the South Coast Air Quality Management District's Fleet Rule).

The LCFS is intended to regulate refiners, importers, and marketers of transportation fuels. These entities will be ineligible for AB 118 funding for projects that are required for LCFS compliance. The Energy Commission however, has latitude to fund projects that are upstream of the LCFS regulation (such as alternative fuel producers) and downstream of the LCFS regulation (for example, alternative fuel retailers or alternative fuel consumers).

Likewise, the ZEV mandate requires vehicle manufactures to produce ZEVs. While vehicle manufacturers are excluded from funding for vehicle production required by the ZEV mandate, funding is allowed for recharging infrastructure and consumer incentives. The Energy

Commission also interprets this to mean that funding may be allowable for vehicle manufacturers of surplus ZEVs after they meet their ZEV obligation.

Advisory Committee

Statutory Language

Health and Safety Code Section 44271.5 (a) and (b) reads:

- The commission shall create an advisory body to help develop an investment plan to determine priorities and opportunities for the Alternative and Renewable Fuel and Vehicle Technology Program created pursuant to this chapter. The advisory body shall be subject to the public meetings requirements of the Bagley-Keene Open Meeting Act (Article 9 (commencing with Section 11120) of Chapter 1 of Part 1 of Division 3 of Title 2 of the Government Code).
- Membership of the advisory body created pursuant to subdivision (a) shall include, but is not limited to, representatives of fuel and vehicle technology consortia, labor organizations, environmental organizations, community-based justice and public health organizations, recreational boaters, consumer advocates, academic institutions, workforce training groups, and private industry. The advisory body shall also include representatives from the Resources Agency, the Business, Transportation and Housing Agency, the Labor and Workforce Development Agency, and the California Environmental Protection Agency.

Approach

Regulations are needed to define the title and leadership of the advisory body as well as certain organizational and participatory aspects of the advisory body.

Rationale

In accordance with the Energy Commission's Order Instituting Rulemaking, Docket No. 08-OIR-1 (January 30, 2008), the Presiding Member of the Transportation Committee will oversee the public meetings of the Advisory Committee, and the entire AB 118 Program. The Energy Commission always refers to an advisory body as the Advisory Committee. Regulation will identify the Presiding Member of the Energy Commission's Transportation Committee as the chairperson of the Advisory Committee and the "advisory body" would be called the "Advisory Committee."

Investment Plan

Statutory Language

Health and Safety Code Section 44271.5(a) reads:

> "The commission shall create an advisory body to help develop an investment plan to determine priorities and opportunities for the Alternative and Renewable Fuel and Vehicle Technology Program created pursuant to this chapter. The advisory body shall be subject to the public meetings requirements of the Bagley-Keene Open Meeting Act (Article 9 (commencing with Section 11120) of Chapter 1 of Part 1 of Division 3 of Title 2 of the Government Code). The investment plan shall describe how funding will complement existing public and private investments, including existing state programs that further the goals of this chapter. The plan shall be updated annually."

Approach

Regulations are needed to clarify the role of the *Investment Plan* in the program.

Rationale

The Energy Commission will use the *Investment Plan* as a guide to fund projects. All projects funded under the program will be consistent with the priorities established by the *Investment Plan*. The regulations will specify that the Energy Commission, with advice from the advisory committee, will develop and adopt the *Investment Plan*. AB 109 contains language that provides similar clarification.

Ratepayer Benefits

Statutory Language

Health and Safety Code Section 44273 (b) reads:

> "Notwithstanding any other provision of law, the sum of 10 million dollars ($10,000,000) shall be transferred annually from the Public Interest Research, Development, and Demonstration Fund created by Section 384 of the Public Utilities Code to the Alternative and Renewable Fuel and Vehicle Technology Fund. Prior to the award of any funds from this source, the commission shall make a determination that the proposed project will provide benefits to electric or natural gas ratepayers based upon the commission's adopted criteria."

Approach

This provision in statute provides clear guidance and direction to the Energy Commission as it applies to the implementation and administration of the Program. No further clarification in regulation is needed.

Rationale

The Energy Commission's *2007-2011 Natural Gas Research Investment Plan*[9] defines a methodology to determine ratepayer benefit. This document is publicly reviewed and represents criteria that have already been adopted by the commission. The Energy Commission will use this framework to determine if there are ratepayer benefits for potential projects. This methodology ensures that allocation decisions for PIER funds comply with the ratepayer benefits mandate and that projects reflect a transportation/energy-related nature.

[9] http://www.energy.ca.gov/2006publications/CEC-500-2006-017/CEC-500-2006-017-CMF.PDF.